

BUCEROS

Envis Newsletter: Avian Ecology & Inland Wetlands

Vol. 4, No. 1, (1999)

POINT CALIMERE WILDLIFE AND BIRD SANCTUARY



Bombay Natural History Society

Editorial

The Point Calimere Wildlife and Bird Sanctuary (Nagapattinam district, Tamil Nadu) has been one of the major field research stations of the Bombay Natural History Society (BNHS). Identified in 1962 as an area of high significance in conservation of birds by the late Dr. Salim Ali, its avifauna (and other wildlife) has been extensively documented and monitored under various projects of the BNHS, most of them funded by the U.S. Fish and Wildlife Service. Large scale bird banding operations were carried out under some of these projects, and to date, about a lakh (1,00,000) birds have been ringed from the Sanctuary area by the BNHS. These, and other studies, have generated an enormous amount of data on the avifauna of the Sanctuary, and helped trace the migration routes of the wintering migrants from the Palearctic region into the Indian subcontinent. Besides the BNHS, the AVC College, Mayiladuthurai, which offers a wildlife biology course, has been using Point Calimere as its field base for many postgraduate students. The Great Vedaranyam Swamp, which forms part of the Sanctuary, was the site for some doctoral studies of the Centre for Advanced Studies in Marine Biology, Parangipettai (Porto Nova), attached to the Annamalai University. This has made Point Calimere one of the most well documented wildlife sanctuaries in India.

This issue of *Buceros* describes the salient features of Point Calimere Wildlife and Bird Sanctuary, discusses some of the findings of the research projects and dwells on the problems that confront the Sanctuary and the Forest Department. Additionally, it lists the publications that have appeared on the Sanctuary. This issue has been prepared on the lines of an earlier issue (Vol. 2, No. 3) on another important field station of the BNHS, the Keoladeo National Park, Bharatpur, Rajasthan.



POINT CALIMERE WILDLIFE AND BIRD SANCTUARY

INTRODUCTION

The Point Calimere Wildlife and Bird Sanctuary is situated on a low promontory on the Coromandel Coast in Nagapattinam district, Tamil Nadu. The Sanctuary forms one of the seaward apexes of the Cauvery river delta. Point Calimere or Kodikkarai (10° 18' N; 79° 51' E), the headquarters of the Sanctuary, was connected by a branch line of the Southern Railway from 1936, but the train service was discontinued in 1986. It is now accessible only by road from Vedaranyam (11km).

Point Calimere is associated with Hindu religion and mythology. The forests of Point Calimere, earlier known the Vedaranyam forests, mean forests (*aranyam*) of the *Vedas* (sacred text of the Hindus). Legend says that Lord Rama visited it enroute to Lanka (Sri Lanka). Ramarpatham (meaning Rama's feet in Tamil), the highest point (4 m above msl) of the Sanctuary, has two foot impressions on a stone slab, and is supposed to be the place from where Rama stood and reconnoitred Ravana's kingdom in Sri Lanka (48 km away). On realising that Point Calimere faced the rear of Ravana's fort, he proceeded to Rameswaram, to observe the propriety of a frontal attack.

In 1967, the forests of Point Calimere with an area of 24.17 km², was declared the Point Calimere Wildlife Sanctuary. In 1988, a proposal was sent to the Tamil Nadu Government to extend the area of the Sanctuary to include the Great Vedaranyam Swamp and the Talaignayar Reserve Forest (Fig. 1). The new Sanctuary, with a total area of 377 km², will bear the name Point Calimere Wildlife and Bird Sanctuary.

GENERAL DESCRIPTION OF THE SANCTUARY

Climate

The climate of the area is monsoonal, but it is not typical of monsoonal climates due to its asymmetrical rainfall regimes. The main contribution to the rainfall is from the Northeast Monsoon, and to a lesser degree, the Southwest Monsoon. The average rainfall ranges from 1000-

1500 mm. The highest temperature (34°C) is recorded in May, and the minimum (25°C) in January and February. Relative humidity remains high throughout the year due to coastal influence. Strong winds are prevalent during certain months, especially in May and June.

Physical Features

The Sanctuary may be divided into three divisions: the Tropical Dry Evergreen Forest at Point Calimere (24.2 km²), the Great Vedaranyam Swamp (349 km²), and the mangrove forests of Talaignayar Reserve Forest (12.4 km²) – see map.

The northern boundary of the Point Calimere forest starts about six kilometres south of Vedaranyam and extends further south for about 4 km till the Palk Strait. It is bounded on the east by the Bay of Bengal and the Great Vedaranyam Swamp on the west. The forest is not continuous but interrupted by many tidal inlets and creeks of varying lengths and widths, which are flooded during the monsoon and in May and June with the coming of the westerly winds. The forest is classified as a Tropical Dry Evergreen Forest. It harbours many species of medicinal plants, which find use in the Indian systems of medicine. There are also broken stretches of open grazing lands, especially at the southern and western portions; mangroves along the Muniappan lake and near the the lighthouse; and dune vegetation on the coast. There are two villages, Kodikkarai and Kodikkadu, at the south-western outskirts of the forest. The major occupations of the locals are fishing and tobacco cultivation.

The Great Vedaranyam Swamp (GVS) comes under the category of ‘bar-built’ estuaries and is estimated to be around 2000 years old (Tissot 1987). The GVS lies parallel to the Palk Strait and is separated from it by a sand bank, breached at a few places. Five irrigation channels connected to the River Cauvery empty into the Swamp. The GVS is flanked on the northern boundary by a number of villages. The habitat of the Swamp is varied. It has a mangrove lined lagoon (Mullipalam Lagoon) in about one-third of its western portion. The other two-thirds is a continuous sheet of shallow, fresh/brackish/saline (depending on the season) water during the monsoon and during the period of the south westerly winds (May and June). At other times, the waterspread dries up, creating mudflats, and during very dry periods, there is water only in the Seruthalaikkadu Creek.

The GVS has a number of uninhabited islets, which are now predominantly covered by the exotic *Prosopis juliflora*.

The Talaignayar Reserve Forest, which is not contiguous with Point Calimere Forests and the Great Vedaranyam Swamp, is approximately 18 km north of Point Calimere. It is situated near the estuary of the River Adappar, which flows into the Bay of Bengal near Kallimedu. The region has characteristic salt-marsh vegetation – see Sebastine and Ellis (1967) for details.

WILDLIFE

Most of the accounts of the wildlife in the Sanctuary given below pertain to the forest and the area of the Great Vedaranyam Swamp around Point Calimere. These areas have been more in focus by researchers, tourists and the Forest Department than the western portion of the Swamp and the Talaignayar Reserve Forest.

Mammals: Eighteen species of mammals have been reported from the Sanctuary. The larger mammals are the Blackbuck *Antelope cervicapra*, Spotted Deer *Axis axis*, Wild Boar *Sus scrofa* and Jackal *Canis aureus*. The Spotted Deer, and the Bonnet Macaque *Macaca radiata*, were introduced into the Sanctuary in 1965. The other major mammals are Jungle Cat *Felis chaus*, Small Indian Civet *Viverricula indica*, Toddy Cat *Paradoxurus hermaphroditus* and Black-naped Hare *Lepus nigricollis*. The Common Mongoose *Herpestes edwardsi* and the Three-striped Palm Squirrel *Funambulus palmarum* are seen both in the forest and the villages. The Flying Fox *Pteropus giganteus* roosts in large flocks on trees in the interior parts of the forest of Point Calimere and the mangrove forest in the extreme western part of the Great Vedaranyam Swamp. The Short-nosed Fruit Bat *Cynopterus sphinx* has also been recorded. Feral ponies and cattle frequent the grazing lands along with Blackbuck. The Common Dolphin *Delphinus delphis* is seen near the shore during the monsoon.

THE BLACKBUCK OF POINT CALIMERE

The Blackbuck *Antelope cervicapra* of Point Calimere represents one of the three isolated populations of blackbuck existing in Tamil Nadu, with the other populations in the Guindy National Park (Chennai) and near Satyamangalam (Erode district). The Blackbuck of Point Calimere are unique in that males do not attain the black colouration of adults, as in parts of central and northern India, and remain a dark tan throughout their lives.

Locally known as *Velimaan* (open country deer), the blackbuck inhabits the open stretch of grazing lands (*ca.* 700 ha), south and west of the forest of Point Calimere. The population fluctuates at around 400 to 500 animals (see Natarajan 1994) and there is hardly any possibility for further increase in numbers due to the limited habitat. The ratio of males to females at Point Calimere is about 1:5. This isolated population of blackbuck at Point Calimere probably survived unmolested throughout the centuries due to the locals now declining belief that eating its meat causes leprosy.

An intensive study was conducted on the blackbuck by the BNHS between 1988-1991 looking into the population structure, movements, activity pattern, feeding ecology and threats facing the species, such as competition for forage from cattle and predation by jackals and village dogs (Natarajan 1994).

Birds: Point Calimere is one of the major wintering grounds for many species of migratory birds in southern India. More than 250 species of birds, representing both waterbirds and land birds, have been recorded from the Sanctuary. Some of the major species are the Greater Flamingo *Phoenicopterus roseus*, Lesser Flamingo *Phoenicopterus* (= *Phoeniconaias*) *minor*, the Spot-billed Pelican *Pelecanus philippensis*, Spoon-billed Sandpiper *Calidris* (= *Eurynorhynchus*) *pygmeus*, Asian Dowitcher *Limnodromus semipalmatus* and White-bellied Sea-Eagle *Haliaeetus leucogaster*.

The BNHS has undertaken large scale banding or ringing of birds in Point Calimere. Bird banding was first carried out during 1969-1972, in a project funded by the World Health Organisation, investigating the role of migratory birds as vectors for certain tick-borne human diseases. Then, during the course of two U.S. Fish & Wildlife Service sponsored projects, bird banding (and other studies) continued almost uninterrupted for more than a decade (1980-1991). A total of one lakh (1,00,000) land and waterbirds have been ringed during these projects at Point Calimere. These studies have generated an enormous amount of data on the avifauna of the Sanctuary, and helped trace the migration routes of the wintering migrants into the Indian subcontinent.

Waterbirds and Salt Works

Three industrial salt works and a number of small and large scale edible salt works operate in the Great Vedaranyam Swamp (GVS). Industrial salt works are heterogeneous in nature, with a system of reservoirs (for storage and partial condensation of brine), condensers (condensation of brine) and crystallizers (harvest pans). Edible salt works are composed almost entirely of crystallizers, with a well to store the brine.

The impact of salt works on waterbirds in the GVS was investigated by the Bombay Natural History Society (BNHS) during 1980-1981 (Ali 1981) and 1988-1990 (Manakadan 1992). The findings of Manakadan's study suggest the following: The impacts of salt works on waterbirds are either negative or positive depending on the species or guilds of birds, season (monsoon, early and peak salt season), and microhabitats within salt works. The impacts could vary depending on the location of a salt work in a swamp, the terrain and the management practices adopted by the salt company. Industrial salt works, with their system of reservoirs, condensers and crystallizers, have less adverse impacts on waterbirds than edible salt works. The latter are almost entirely composed of crystallizers, resulting in an almost total loss of habitat for waterbirds during the salt season. They support some bird populations during the monsoon (off-season for salt works). Species that are adversely affected by salt works are the ducks,

plovers and sandpipers, while fish eating birds are generally benefited.

The results of the study are applicable only to salt works on the east coast of India, where the migratory season of birds coincides with the monsoon (the off-season for salt works). The impacts of salt works on waterbirds on the west coast is expected to be more adverse, as the salt season there coincides with the migratory season of birds.

Reptiles: Twenty five species of reptiles have been recorded, among them are the Starred Tortoise *Geochelone elegans*, Indian Pond Terrapin *Melanochelys trijuga*, Indian Chameleon *Chameleon zeylanicus*, Common Indian Monitor *Varanus bengalensis*, Common Indian Tree Snake *Dendrelaphis tristis*, Common Green Whip Snake *Ahaetulla nasutus*, Indian Cobra *Naja naja*, Common Rat Snake *Ptyas mucosus*, Dumeril's Blackheaded Snake *Sibynophis subpunctatus* and Saw-scaled Viper *Echis carinatus*. The Olive Ridley Turtle *Lepidochelys olivacea* nests in the shore near the lighthouse.

Fishes: The Great Vedaranyam Swamp is the spawning and nursing ground for commercially important maritime prawns and fishes, such as *Penaeus indicus*, *P. monodon*, *Hilsa ilisha* and *Chanos chanos*. Other than these anadromous species, the fish fauna of the Swamp is mainly represented by mullet species. The Marsh Crab *Scylla serrata* is a commercially important species from the Swamp. The exotic *Oreochromis mossambicus* (= *Tilapia mossambica*) is abundant in the reservoirs and low salinity condensers of industrial salt works, and in inundated areas of the Sanctuary during the monsoon. The coast of Point Calimere is an important fish landing site for fishes and prawns from November to February.

Flamingos - The *prima donnas* of the Sanctuary

Both the species of flamingoes that inhabit the Old World viz., the Greater Flamingo *Phoenicopterus roseus* and Lesser Flamingo *Phoenicopterus* (= *Phoeniconaias*) *minor* inhabit the Great Vedaranyam Swamp (GVS). The origin of flamingo species of the GVS is uncertain. The earlier general presumption that they originate from Kutch is belied by the recovery of Iranian and Russian ringed Greater Flamingoes from the GVS. The Lesser Flamingo is presumed to be of African origin since little breeding has been recorded in India. The Greater Flamingo appears to be largely a monsoon visitor to the GVS. The movements of Lesser Flamingo in the GVS are erratic, it is sedentary for some months and then moves to other haunts.



Flamingoes inhabit highly alkaline and saline lakes and are considered to be partial to saltworks. The Greater Flamingo is attracted to reservoirs and low salinity condensers of industrial salt works in the GVS during the monsoon, due to increase in food supplies. The Lesser Flamingo avoids salt works all through the year. The main reason for this difference is that the Greater Flamingo is a generalist feeder (plant and animal) and can shift to feeding on different species of food, where and when abundant, while the Lesser Flamingo is a specialist feeder (blue green algae) and cannot shift to such opportunistic feeding. For more information, see Manakadan (1992, 1995).

A POINT TO PONDER

The tranquil exterior of the Point Calimere Sanctuary is deceptive – it is beset by problems. One major contributory factor is the burgeoning human population bordering the Sanctuary, which exerts pressures on the Sanctuary. Almost the entire firewood requirement of Kodikkarai and Kodikkadu is being illegally obtained from the forest. Traditionally, the tribals, called *Seenthikodi Valaiyars*, (who live around the forest boundary in Kokikkadu), are allowed to collect dry twigs from the forest for their own use. With the increasing demand for firewood, the tribals now lop trees to supply wood to the villages. The burden increases during the fishing season (December to February), when there is an influx of five to six thousand fishermen from other areas. Besides firewood, there is illegal collection of forest produce, such as fruits of *Manilkara hexandra*, *Zizyphus mauritiana*, *Carissa carandus*, *Syzgium cumini*, *Sapindus emarginatus*, rhizomes of *Gloriosa superba* and leaf litter for use as manure for the tobacco crop. Illegal extraction of wood also occurs in the mangrove forests in the Sanctuary.

The Great Vedaranyam Swamp (GVS) has a long history of salt works. A number of domestic and industrial salt works operate in the Swamp. There have been demands from different quarters for setting-up of more salt works, including a huge (24,000 ha) salt complex. Though a BNHS study (Manakadan 1992) showed that the impacts of salt works on waterbirds depend on many factors and can be beneficial for some species, the overall impact of a salt complex of such a magnitude will definitely alter the ecosystem, affecting the flora and fauna of the GVS, besides having possible repercussions on the fisheries of the coast.

The flow of freshwater from the River Cauvery is now restricted to the monsoon period due to the presence of dams all along the river's course. Elderly people recall the days when the northern parts of the Swamp had extensive reed beds, which have now been transformed into mudflats or mangroves. The reduced freshwater flow (and the setting-up of salt works) must have altered the water chemistry, affecting the flora and fauna. Inflow of pollutants with the waters of the Cauvery, which traverses nearly 850 km, as it flows across towns, agricultural areas and industrial zones, is another cause of concern.

The other two major problems are over-fishing and poaching. There are no restrictions on fishing, as a result of which fishes of small size and non-target species are also caught. Poaching of waterbirds in the GVS is a serious problem that confronts the Forest Department. A study by the Salim Ali Wild Wings Trust (Daniel *et. al* 1999) found that certain families in the villages that border the GVS depend on bird trapping for their livelihood.

To sum up, there are a multitude of problems that confront the Sanctuary and the Forest Department. Solutions to some of these problems are complex and cannot be tackled by the Forest Department alone. It will require the cooperation of different government departments, non-governmental organisations, social workers and environmentalists to set things right.

STUDIES UNDERTAKEN

The Point Calimere Wildlife and Bird Sanctuary was identified as an area of high significance in conservation of birds from the time the late Dr. Salim Ali made an exploratory visit to the area in 1962. From 1980 for nearly a decade, the Bombay Natural History Society (BNHS) had been monitoring the avifauna and other wildlife (and their habitats) of the forests of Point Calimere and the Great Vedaranyam Swamp, under two U.S. Fish and Wildlife Service sponsored projects. However, the Talaigayal Reserve Forest, which is part of the proposed Sanctuary, has largely been overlooked, probably since it is at some distance from Point Calimere. Besides the BNHS, the AVC College Mayiladuthurai, which offers a wildlife biology course, has used the Point Calimere Wildlife and Bird Sanctuary as a field base for many postgraduate students. Students of the Centre for Advanced Studies in Marine Biology, Parangipettai (Porto Nova) have also undertaken a few research projects in the Great Vedaranyam Swamp. Listed below are the publications that have appeared on the Sanctuary.

Theses

- * Alagarrajan, S. (1990). The ecology of Indian Ring Dove *Streptopelia decaocto decaocto* (Frivaldszky) and the Indian Spotted Dove

Streptopelia chinensis suratensis (Gmelin) at Point Calimere Wildlife Sanctuary, Tamil Nadu. M.Sc. Thesis, University of Bombay, Bombay.

- * Alagarrajan, S. (1996). The avifauna of the Tropical Dry Evergreen Forest of Point Calimere Wildlife Sanctuary, Tamil Nadu. Ph.D. Thesis, University of Bombay, Bombay.
- * Ali, S.Q. (1991). Ecology and behaviour of the Grey Francolin *Francolinus pondicerianus* (Gmelin) Class: Aves, Family: Phasianidae. M.Sc. Thesis, University of Bombay, Bombay.
- * Anbazhagan, P. (1988). Hydrobiology and benthic ecology of Kodikkarai Coastal Sanctuary (southeast coast of India). Ph.D. Thesis, Annamalai University, Parangipettai.
- * Asokan, R. (1989). Field studies on the dung beetle (*Scarabaeus gangeticus*) with special reference to diurnal activities in Point Calimere Wildlife Sanctuary. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Ayyadurai, M. (1984). A preliminary survey of helminthic infection in the Wild Boar (*Sus scrofa*) of Point Calimere Wildlife Sanctuary. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Balamurugan, T. (1998). Study on habit-habitat analysis of some selected migratory birds at Point Calimere Wildlife and Bird Sanctuary. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Balasubramanian, P. (1982). Study of the flora of Vedharanyam Reserve Forest. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Balasubramanian, P. (1990). Plant-animal interrelations at Point Calimere Sanctuary. Ph.D. Thesis, University of Bombay, Bombay.
- * Baskar, N. (1986). A study on the feeding habits of Herring Gulls (*Larus brunnicephalus*) and Brahminy Kite (*Haliastur indus*) with special emphasis on their role as natural cleaning agencies of fishery

wastes at Point Calimere. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.

- * Bharathidasan, V. (1983). Studies of the population dynamics and behaviour of Blackbuck of Vedharanyam Reserve Forest. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Gnanaprakasam, M. (1983). Distribution of litter fauna in relation to moisture in the Vedaranyam Reserve Forest. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Jayakumar, S. (1987). Feeding ecology of wintering Brahminy Kite (*Haliastur indus*) near Point Calimere Wildlife Sanctuary. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Jayaraman, V. (1982). Food of Anurans at Kodikkarai area. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Kalaiarasan, V. (1986). The comparative study of water requirements of Blackbuck *Antelope cervicapra* and Cheetal (*Axis axis*). M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Kamaraj, G. (1992). Status and ecology of gulls wintering at Point Calimere Wildlife Sanctuary. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Manakadan, R. (1992). Ecology of waterbirds of Point Calimere Sanctuary with special reference to impact of salt works. Ph. D. Thesis, University of Bombay, Bombay.
- * Mathivanan, L (1984). Studies on the seasonal variation in the ortho-dihydroxy phenol, total phenol, potassium and dry weight in the leaves of Mono Dub to leaf spot fungal infection in Vedharanyam Reserve Forest. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Muralidharan, S. (1985). Foraging ecology of Blackbuck (*Antelope cervicapra*), and its interaction with cattle at Point Calimere. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.

- * Natarajan, S. (1983). Studies on the primary productivity of selected plants in Vedharanyam Reserve Forest. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Natarajan, V. (1982). Parasites infecting insects of Kodikkarai and Vedharanyam. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Natarajan, V. (1990). The ecology of the Southern Crow-pheasant *Centropus sinensis parroti* Stresemann (Aves: Cuculidae) at Point Calimere, Tamil Nadu. Ph.D. Thesis, University of Bombay, Bombay.
- * Nedumaran, R. (1987). Dietary overlap between Blackbuck and cattle at Point Calimere Sanctuary. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Nedumaran, R. (1987). Influence of cattle grazing on the food and feeding habits of Blackbuck (*Antelope cervicapra*) at Point Calimere Wildlife Sanctuary. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Neelamegam, R. (1984). Studies on the seasonal variations in the nitrogenous compounds, phosphorus, and dry weight in the leaves of selected plants, *Glycosmis cochinchinensis*, *Memecylon umbellatum*, *Pongamia glabra* and *Manilkara hexandra* due to leaf spot fungal infection in Vedharanyam Reserve Forest. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Rajamani, R. (1982). Bionomics of the larvae of aquatic ecosystems of Vedharanyam Reserve Forest. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Rajasekaran, G. (1988). Food habits of Blackbuck (*Antelope cervicapra*) of Point Calimere Sanctuary. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Rajendran, T. (1985). Studies on the primary productivity in the grass field of Point Calimere Wildlife Sanctuary. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.

- * Ravi, N. (1985). Habitat preference in comparison with the food availability of Curlew-Sandpiper (*Calidris testacea*) at Point Calimere. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Sakthivel, R. (1992). Habitat utilization and time activity budget of egrets and herons at Point Calimere Wildlife Sanctuary. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Sampath, K. (1982). Amphibian parasites of Kodikkarai area. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Sampath, K. (1989). Studies on the ecology of shorebirds (Aves: Charadriiformes) of the Great Vedaranyam Swamp and the Pichavaram mangroves of India. Ph.D. Thesis, Annamalai University, Parangipettai.
- * Sankar, K. (1987). Habitat utilization of some wintering shorebirds in Point Calimere Sanctuary. M.Phil. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Selvam, V. (1991). Environmental concerns of the hydrobiology of the Muthupet mangrove ecosystem, Tamil Nadu, India. Ph.D. Thesis, University of Madras, Madras.
- * Singaravelan, G. (1985). Studies on the ectoparasites of migratory and non-migratory birds of Point Calimere Bird Sanctuary. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Sridharan, J. (1982). Systematics and distribution of mycoflora of Vedharanyam Reserve Forest. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Sridharan, U. (1982). Systematics of the insects of Vedharanyam Reserve Forest. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Veerasamy, T. (1983). Studies on the seasonal variation in the decomposition of sugar, starch, chlorophyll, and organic carbon in selected plants *Memecylon umbellatum*, *Manilkara hexandra*, *Cassia*

emarginata of Vedharanyam Reserve Forest. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.

- * Venkatesan, S. (1983). Distribution of litter fauna in relation to temperature in the Vedharanyam Reserve Forest. M.Sc. Dissertation, Bharathidasan University, Tiruchirapalli.
- * Vijayan, V.S. (1975). Ecological isolation of bulbuls (Family Pycnonotidae, Class Aves) with special reference to *Pycnonotus cafer cafer* (Linn.) and *P. luteolus luteolus* (Lesson) at Point Calimere, Tamil Nadu. Ph.D. Thesis, University of Bombay, Bombay.

Papers, Reports and Articles

- * Abdulali, H. (1985). Comments on “Some aspects of the avifauna of the Point Calimere Sanctuary, Thanjavur District, Tamil Nadu by R. Sugathan”. *J. Bombay nat. Hist. Soc.* 79(3): 567-575, (1983). *J. Bombay nat. Hist. Soc.* 82(1): 209-210.
- * Alagarrajan, S. (1992). Unusual foraging site of Goldenbacked Woodpecker *Dinopium benghalense*. *J. Bombay nat. Hist. Soc.* 89(3): 374.
- * Alagarrajan, S. (1994). Impact of forest degradation on the avifauna at Point Calimere Wildlife Sanctuary, pp. 51-69. In: Daniel, J.C. & Y.N. Rao (Eds.) Ecology of Point Calimere Sanctuary (An Endangered Ecosystem). Final Report 1988-1991. Bombay Natural History Society, Bombay.
- * Alagarrajan, S. & P. Balasubramanian (1989). Tool using behaviour in Indian House Crow *Corvus splendens*. *J. Bombay nat. Hist. Soc.* 86(3): 450.
- * Alagarrajan, S., S. Balachandran & P. Balasubramanian (1987). Unusual nest site of a Threestriped Palm Squirrel *Funambulus palmarum* at Point Calimere. *J. Bombay nat. Hist. Soc.* 84(2): 426.

- * Alagarrajan, S., P. Balasubramanian & V. Natarajan (1992). Eastern Steppe Eagle *Aquila rapax nipalensis* Hodgson killing mobbing Brahminy Kite *Haliastur indus* at Point Calimere Wildlife Sanctuary, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 89(2): 247.
- * Ali, S. (1963). Point Calimere as a refuge for wintering shorebirds. *J. Bombay nat. Hist. Soc.* 60(2): 458-460.
- * Ali, S. (1981). Ecological reconnaissance of the Vedaranyam Swamp, Thanjavur district, Tamil Nadu. Bombay Natural History Society, Bombay.
- * Ambedkar, V. C. (1983). Occurrence of the Sooty Tern (*Sterna fuscata*) at Point Calimere, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 80(1): 215.
- * Anon. (1992). Synopsis of thesis “The ecological isolation of bulbuls with special reference to *Pycnonotus cafer cafer* and *P. luteolus luteolus* at Point Calimere, Tamil Nadu, by V. S. Vijayan”. *Newsletter for Birdwatchers* 32(3 & 4): 8-9.
- * Anon. (1998). Bird Migration Studies in India (1980-1992). Final Report. Bombay Natural History Society, Mumbai.
- * Ayyadurai, M., V. Natarajan, P. Balasubramanian & S. Alagarrajan (1987). A note on the food of the Small Indian Civet (*Viverricula indica*) at Point Calimere Wildlife Sanctuary, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 84(1): 203.
- * Balachandran, S. (1988). Some observations on unusual feeding behaviour of Whitebreasted Waterhen (*Amaurornis phoenicurus*). *J. Bombay nat. Hist. Soc.* 85(3): 615-616.
- * Balachandran, S. (1994). Black Redstart *Phoenicurus ochrurus* and Southern Small Minivet *Pericrocotus cinnamomeus* - New bird records to Point Calimere Wildlife Sanctuary, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 91(2): 322.

- * Balachandran, S. (1995). Comments on "The Occurrence of Black Tern *Chlidonias niger* at Point Calimere by Vivek Menon". *J. Bombay nat. Hist. Soc.* 91(3): 453-454.
- * Balachandran, S. & S. Alagarrajan (1994). Philippine Shrike *Lanius cristatus lucionensis*, a regular winter visitor to south India. *J. Bombay nat. Hist. Soc.* 91(1): 143-144.
- * Balachandran, S., S. Alagarrajan, P. Balasubramanian, V. Natarajan & S.Q. Ali (1986). Some storm-blown pelagic birds in Point Calimere. *J. Bombay nat. Hist. Soc.* 83(2): 436-438.
- * Balachandran, S. & S.A. Hussain (1994). Longest longevity record for the Lesser Sandplover *Charadrius mongolus* Pallas. *J. Bombay nat. Hist. Soc.* 91(1): 140-141.
- * Balachandran, S. & V. Natarajan (1992). Possible occurrence of four subspecies of Lesser Sand Plover *Charadrius mongolus* at Point Calimere Wildlife Sanctuary, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 89(1): 118-119.
- * Balachandran, S. & V. Natarajan (1992). Unusual behaviour or an adaptation against predator in Terek Sandpiper *Tringa terek*. *J. Bombay nat. Hist. Soc.* 89(3): 373.
- * Balachandran, S. & V. Natarajan (1997). Biometrics, moult, age structure and subspecies of Broadbilled Sandpiper *Limicola falcinellus* wintering at Great Vedaranyam Swamp in south-east India. *Stilt* 31: 23-25.
- * Balachandran, S. & V. Natarajan (1998). Moult, age structure, biometrics and subspecies of Lesser Sand Plover *Charadrius mongolus* wintering along the south-east coast of India. *Stilt* 33: 3-9.
- * Balachandran, S., L. Rosalind & S. Alagarrajan (1992). Range extension of the Rubythroat *Erithacus calliope*. *J. Bombay nat. Hist. Soc.* 89(1): 126.

- * Balachandran, S. & L. Rosalind (1992). Occurrence of the Southern Ashy Wren Warbler *Prinia socialis* at the Point Calimere Wildlife Sanctuary. *J. Bombay nat. Hist. Soc.* 89(3): 377.
- * Balachandran, S. & R. Sakthivel (1994). Site-fidelity to the unusual nesting site of Brahminy Kite *Haliastur indus*. *J. Bombay nat. Hist. Soc.* 91(1): 139.
- * Balasubramanian, P. (1988). Shortnosed Fruit Bat (*Cynopterus sphinx* Vahl.) feeding on the leaves of *Cassia fistula* at Point Calimere Sanctuary. *J. Bombay nat. Hist. Soc.* 85(1): 183.
- * Balasubramanian, P. (1988). A note on Roseringed Parakeet *Psittacula krameri* feeding on the leaves of *Salvadora persica* in the Point Calimere Wildlife Sanctuary. *J. Bombay nat. Hist. Soc.* 86(1): 103.
- * Balasubramanian, P. (1989). Nectar feeding by Threestriped Palm Squirrel *Funambulus palmarum* at Point Calimere Wildlife Sanctuary, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 86(3): 437.
- * Balasubramanian, P. (1989). On the dispersal of Wild Lime *Atalantia monophylla* (L.) Corr. Serr. (Rutaceae) seeds by Shortnosed Fruit Bat *Cynopterus sphinx* Vahl in Point Calimere Wildlife Sanctuary, south India. *J. Bombay nat. Hist. Soc.* 86(3): 482-483.
- * Balasubramanian, P. (1990). Behaviour of Southern Spotted Owlet *Athene brama brama* (Temminck) and Jungle Crow *Corvus macrorhynchos* at Point Calimere, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 87(1): 145.
- * Balasubramanian, P. (1990). Seed dispersal of *Cassytha filiformis* at Point Calimere, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 87(3): 472.
- * Balasubramanian, P. (1990). Feeding association between Jackal *Canis aureus* (Linnaeus) and two species of egrets at Point Calimere Wildlife Sanctuary, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 87 (1): 138-139.

- * Balasubramanian, P. (1990). *Jatropha gossypifolia* L. and *Jatropha curcus* L. New host plants for the Long-horned Beetle *Sthenias grisator* Fb. (Cerambycidae: Coleoptera). *J. Bombay nat. Hist. Soc.* 87(1): 165-166.
- * Balasubramanian, P. (1990). Indian House Crow *Corvus splendens* preying upon Pied Ground Thrush *Zoothera wardii* at Point Calimere, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 87(2): 301-302.
- * Balasubramanian, P. (1991). *Excoecaria agallocha* L. – An additional host to the Long-horned Beetle *Sthenias grisator* Fb. (Cerambycidae: Coleoptera) from Point Calimere Sanctuary. *J. Bombay nat. Hist. Soc.* 88(2): 299-300.
- * Balasubramanian, P. (1991). Bulbuls feeding on the pulp of *Cassia fistula* pod in Point Calimere Sanctuary, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 88(3): 456.
- * Balasubramanian, P. (1992). A note on Southern Goldenbacked Woodpecker *Dinopium benghalense* feeding on the nectar of Banana tree *Musa paradisiaca*. *J. Bombay nat. Hist. Soc.* 89(2): 254.
- * Balasubramanian, P. (1992). Food plants of Blister Beetle *Mylabris pustulata* Thunb. (Coleoptera: Cantharidae) from Point Calimere Wildlife Sanctuary, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 89(2): 262-263.
- * Balasubramanian, P. (1992). A note on the food items of Common Madras Snail, *Cryptozona bistrialis* from Point Calimere Wildlife Sanctuary. *J. Bombay nat. Hist. Soc.* 89(2): 267.
- * Balasubramanian, P. (1993). Food plants of Roseringed Parakeet *Psittacula krameri* in Point Calimere Wildlife Sanctuary. *Indian J. Forestry* 16(3): 282-284.
- * Balasubramanian, P. (1994). Floristic studies of Great Vedaranyam Swamp, pp. 7-16. In: J.C. Daniel & Y.N. Rao (Eds.) Ecology of Point Calimere Sanctuary (An Endangered Ecosystem). Final Report (1988-1991). Bombay Natural History Society, Bombay.

- * Balasubramanian, P. (1995). Animal activity and seed dispersal of *Manilkara hexandra* (Roxb.) Dubard. *Indian J. Forestry* 18(3): 201-204.
- * Balasubramanian, P. (1996). Interactions between fruit-eating birds and bird-dispersed plants in the Tropical Dry Evergreen Forest of Point Calimere, south India. *J. Bombay nat. Hist. Soc.* 93(3): 428-441.
- * Balasubramanian, P. & P.V. Bole (1993). Seed dispersal by mammals at Point Calimere Wildlife Sanctuary, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 90(1): 33-44.
- * Balasubramanian, P. & P.V. Bole. (1993). Fruiting phenology and seasonality in the Tropical Dry Evergreen Forest of Point Calimere Wildlife Sanctuary, India. *J. Bombay nat. Hist. Soc.* 90(2): 164-177.
- * Balasubramanian, P. & V. Karunanidhi (1988). On the occurrence of *Holcolemma canaliculatum* Stapf et Hubbard, Nees ex Stued, a rare grass to south India at Point Calimere Wildlife Sanctuary. *J. Bombay nat. Hist. Soc.* 85(1): 244-245.
- * Balasubramanian, P. & Y.N. Rao (1993). Phytosociological analysis of wetland vegetation in Point Calimere Wildlife Sanctuary. *Indian J. Forestry* 16(2): 144-150.
- * Balasubramanian, P. & R. Sugathan (1986). Some notes on the distribution, nature of hosts and symptoms of flowering parasite *Dendrophthoe falcata* (L.F.) Ettingsh at Point Calimere Wildlife Sanctuary. *J. Bombay nat. Hist. Soc.* 83(2): 461-463.
- * Blasco, F. (1975). The Mangroves of India. Institute Francais de Pondicherry, Pondicherry.
- * Blasco, F. & P. Legris (1973). Dry Evergreen Forest of Point Calimere and Marakanam. *J. Bombay nat. Hist. Soc.* 70(2): 279-294.
- * Daniel, J. C. (1967). The Point Calimere Sanctuary, Madras State. (May 1967). *J. Bombay nat. Hist. Soc.* 64(3): 512-523.

- * Daniel, J.C. (1975). Bird migration studies in India: The migrant waders of the family Charadriidae. *J. Mar. biol. Ass. India* 17: 10-205.
- * Daniel, J.C. (1985). India's Wetland Resources, pp: 39-42. In: Conserving Asia's Natural Heritage (Ed. J. Thorsell). IUCN, Switzerland.
- * Daniel, J.C., S. Balachandran & S. Alagarrajan (1999). Community participation in conservation of the waterbirds of Vedaranyam Swamp. A case study on the bird trappers. Salim Ali Wild Wings Trust, Mumbai.
- * Daniel, J.C. & Y.N. Rao (1994). Ecology of Point Calimere Sanctuary (An Endangered Ecosystem). Final Report: 1988-1991. Bombay Natural History Society, Bombay.
- * Hussain, S.A. & S. Balachandran (1993). Recovery of Russian ringed Grey Plover *Charadrius squatarola* at Point Calimere. *J. Bombay nat. Hist. Soc.* 90(3): 508.
- * Hussain, S.A., R. Sugathan & P. Balasubramanian (1984). Some aspects of the Point Calimere vegetation and phenology of the Tropical Dry Evergreen Forest in Point Calimere Sanctuary. Technical Report No. 1. Bombay Natural History Society, Bombay.
- * Hussain, S.A., R. Sugathan & R. Pandian (1985). Importance of Vedaranyam Swamp as a major ecological entity in the south-east coast of India. Proc: *Symposium on Endangered Marine Animals and Marine Parks*. Paper No. 38. Cochin 12-16 January 1985.
- * Hussainy, H.S.H. & J. Azariah (1985). Point Calimere Marine Park: Conservation and management priorities. Proc: *Symposium on Endangered Marine Animals and Marine Parks*. Paper No. 39. Marine Biological Association of India, Cochin, India.
- * Jamdar, N. (1987). Additions to the birds of Point Calimere, south India. *J. Bombay nat. Hist. Soc.* 84(1): 206.

- * Johnson, J.M. (1975). The Blackbuck in Point Calimere Sanctuary, Tamil Nadu. Population dynamics and observations on behaviour. *Indian Forester* 101: 484-494.
- * Harrap, S. C. & N.J. Redman (1989). Some observations of scarce birds in Kerala and Tamil Nadu. *J. Bombay nat. Hist. Soc.* 86(3): 460-461.
- * Kazmierczak, K.J., S. Balachandran & L. Rosalind (1992). Occurrence of Caspian Plover *Charadrius asiaticus* at Point Calimere, south India. *J. Bombay nat. Hist. Soc.* 89(3): 373.
- * Krishnan, M. (1972). An ecological survey of the larger mammals of Peninsular India. *J. Bombay nat. Hist. Soc.* 75 (Suppl.): 1143-1152.
- * Krishna Raju, K.S.R. & P.B. Shekar (1971). Some interesting bird records from Point Calimere. *J. Bombay nat. Hist. Soc.* 68(2): 457-459.
- * Krishna Raju, K.S.R., P.B. Shekar & P.J. Selvin (1972). Movement of Blyth's Reed Warbler (*Acrocephalus dumetorum*) through Point Calimere. *J. Bombay nat. Hist. Soc.* 69(1): 186.
- * McClure, H.E. (1974). Migration and survival of the birds of Asia U.S. Army Medical Component, SEATO Medical Project, Bangkok, Thailand.
- * Manakadan, R. (1991). Greenshank *Tringa nebularia* feeding on large fish. *J. Bombay nat. Hist. Soc.* 88(3): 451-452.
- * Manakadan, R. (1991). A flock of one-legged Greenshanks *Tringa nebularia*. *J. Bombay nat. Hist. Soc.* 88(3): 452.
- * Manakadan, R. (1993). The White Stork *Ciconia ciconia* - A new record for the Point Calimere Wildlife Sanctuary. *J. Bombay nat. Hist. Soc.* 90(2): 295.
- * Manakadan, R. (1993). The Common Toad *Bufo melanostictus* and the Garden Lizard *Calotes versicolor* feeding on swarming termites. *J. Bombay nat. Hist. Soc.* 90(3): 522.

- * Manakadan, R. (1995). Impact of salt works on the status, population of the Greater Flamingo *Phoenicopterus ruber roseus* and the Lesser Flamingo *Phoeniconaias minor* in the Great Vedaranyam Swamp. *J. Bombay nat. Hist. Soc.* 92(3): 364-371.
- * Manakadan, R. (1994). Impact of salt works on waterbirds and their habitats in the Great Vedaranyam Swamp, pp. 95-131. In: Daniel, J.C. & Y.N. Rao (Eds.). *Ecology of Point Calimere Sanctuary (An Endangered Ecosystem). Final Report (1988-1991).* Bombay Natural History Society, Bombay.
- * Manakadan, R. & V. Natarajan (1992). Brahminy Kite *Haliastur indus* (Boddaert) preying on bats. *J. Bombay nat. Hist. Soc.* 89(3): 367.
- * Melville, D.S. (1995). Notes on primary moult in the Rednecked Phalarope *Phalaropus lobatus* (Linn.). *J. Bombay nat. Hist. Soc.* 92(2): 263-265.
- * Morrison, D., L. Rosalind & S. Balachandran (1992). Unusual nesting site of Brahminy Kite *Haliastur indus*. *J. Bombay nat. Hist. Soc.* 89(1): 126.
- * Nair, S.S. (1976). A population survey and observations on the behaviour of the Blackbuck in the Point Calimere Sanctuary, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 73: 304-310.
- * Natarajan, V. (1992). Wintering waterbirds at Point Calimere, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 89(2): 316-320.
- * Natarajan, V. (1992). Food storing behaviour of the Jungle Crow *Corvus macrorhynchos* Wagler. *J. Bombay nat. Hist. Soc.* 89(3): 375.
- * Natarajan, V. (1993). Awakening, roosting and vocalisation behaviour of the Southern Crow-pheasant at Point Calimere, Tamil Nadu, pp. 158-160. *Proc.: Bird Conservation, Strategies for the 90s & Beyond.* Ornithological Society of India, Bangalore.

- * Natarajan, V. (1993). Food and feeding habits of the Southern Crow-pheasant *Centropus sinensis parroti* Stresemann (Aves: Cuculidae) at Pt. Calimere, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 90 (1): 11-16.
- * Natarajan, V. (1993). Time budgeting by the Southern Crow-pheasant *Centropus sinensis parroti* Stresemann (Aves: Cuculidae) at Pt. Calimere, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 90(1): 92-95.
- * Natarajan, V. (1994). "Biology of the Blackbuck", pp. 70-94. In: Daniel, J.C. & Y.N. Rao (Eds.) Ecology of Point Calimere Wildlife and Bird Sanctuary (An Endangered Ecosystem). Final Report (1988-1991). Bombay Natural History Society, Bombay.
- * Natarajan, V & S. Alagarrajan (1991). Range extension of the Dumeril's Blackheaded Snake *Sibynophis subpunctatus* (Dum. & Bibr.). *J. Bombay nat. Hist. Soc.* 88(1): 123.
- * Natarajan, V. & P. Balasubramanian (1988). Additional notes on the prey items of Green Whip Snake from Point Calimere Sanctuary, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 85(2): 438-439.
- * Natarajan, V. & S. Balachandran (1990). Marsh Crocodile *Crocodylus palustris* (Lesson) at Point Calimere, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 87(2): 307-308.
- * Natarajan, V. & P. Balasubramanian (1990). Additional notes on the occurrence of Black Tern *Chlidonias niger* (Linn.) in India. *J. Bombay nat. Hist. Soc.* 87(3): 451-452.
- * Natarajan, V. & P. Balasubramanian (1990). Occurrence of Hair-crested Drongo *Dicrurus hottentottus* (Linnaeus) in Point Calimere, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 87(1): 147.
- * Natarajan, V. & P. Balasuramanian (1992). Dew-bathing by Purplerumped Sunbird *Nectarinia zeylonica*. *J. Bombay nat. Hist. Soc.* 89(3): 377.

- * Natarajan, V., P. Balasubramanian, S. Alagarrajan & R. Manakadan (1990). Further additions to the avifauna of Point Calimere. *J. Bombay nat. Hist. Soc.* 87(3): 457.
- * Natarajan, V., P. Balasubramanian, Y.N. Rao & S. Alagarrajan (1992). Crows feeding on the seeds of *Albizia lebbek* and the exotic *Acacia melanoxylon*. *J. Bombay nat. Hist. Soc.* 89(3): 375.
- * Natarajan, K.N., T.S.P.S. Raj & C.K. Shah (1978). Blackbuck (*Antelope cervicapra*) at Point Calimere. *J. Bombay nat. Hist. Soc.* 75(1): 209-211.
- * Natarajan, V., R. Sugathan, & S.A. Hussain (1984). *Prosopis juliflora* - Profile of an exotic in the Tropical Dry Evergreen Forest of Point Calimere. Technical Report No. 5, Bombay Natural History Society, Bombay.
- * Perennou, C. & V. Santharam (1990). An ornithological survey of some wetlands in south-east India. *J. Bombay nat. Hist. Soc.* 87(3): 354-363.
- * Rao, Y.N. & P. Balasubramanian (1994). Vegetation Ecology of the Point Calimere Sanctuary, pp. 17-50. In: Daniel, J.C. & Y.N. Rao (Eds.) Ecology of Point Calimere Sanctuary (An Endangered Ecosystem). Final Report 1988-1991. Bombay Natural History Society, Bombay.
- * Rosalind, L. (1991). A Point to Ponder. *Hornbill* (1): 2-7.
- * Sampath, K. (1991). Food habits of shorebirds from the Great Vedaranyam Salt Swamp of Tamil Nadu, India. *Stilt* 19: 50-52.
- * Sampath, K. & K. Krishnamurthy (1989). Shorebirds of the salt ponds at Great Vedaranyam Salt Swamp. *Stilt* 15: 20-23.
- * Sebastine, K.M. & J.L. Ellis (1967). A contribution to the vascular flora of Vedaranyam and Talaignayar Reserve Forests, Tanjore District, Madras State. *Bull. Bot. Surv. India* 5: 190-200.

- * Spillett, J.J. (1968). A report on wildlife surveys in south and west India. *J. Bombay nat. Hist. Soc.* 65(3): 633-663.
- * Stracy, P.D. (1960). The Blackbuck of Point Calimere. *Cheetal* 3: 67-69.
- * Sugathan, R. (1982). Some interesting aspects of the avifauna of the Point Calimere Sanctuary, Thanjavur District, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 79(3): 567-575.
- * Sugathan, R. (1985). Observations on Spoonbilled Sandpiper (*Eurynorhynchus pygmaeus*) in its wintering ground at Point Calimere, Thanjavur District, Tamil Nadu. *J. Bombay nat. Hist. Soc.* 82(2): 407-408.
- * Sugathan, R. & S. Alagarrajan (1988). Notes on feeding behaviour of *Amaurornis phoenicurus* at Point Calimere. *J. Bombay nat. Hist. Soc.* 85(1): 191.
- * Sugathan, R., D.S. Melville, & S. Alagarrajan (1987). Further additions to the avifauna of Point Calimere. *J. Bombay nat. Hist. Soc.* 84(1): 206-207.
- * Tissot, C. (1987). Recent evolution of mangrove vegetation in the Cauvery delta: A palynological study. *J. Mar. Biol. Ass. India* 29: 16-22.
- * Varatharaj, P. (1988). Management Plan for Point Calimere Wildlife and Bird Sanctuary (1988-1994). Tamil Nadu Forest Department, Madras.

